

REMARKS

Claims 1 through 9 are pending in the subject application. Claims 1-9 stand rejected under 35 U.S.C. 103(a). Claim 4 is further rejected under 35 USC 112, first and second paragraphs. Claims 1, 4, 8 and 9 have been amended. Claim 2 has been canceled.

The Applicants appreciate the Examiner's thorough examination of the subject application and, moreover, the Examiner's granting of a telephone interview on February 24, 2004. The Applicants respectfully request reconsideration of the subject application based on the above amendments and the following remarks.

35 U.S.C. § 112, FIRST AND SECOND PARAGRAPH REJECTION

The Examiner has rejected claim 4 under 35 USC 112, first paragraph for containing subject matter not described in the specification and under 35 USC 112, second paragraph as being indefinite for failing to point out and distinctly claim the subject matter that the Applicants regard as their invention. Claim 4 has been amended and the Applicants believe that the grounds for the rejection are now moot.

Accordingly, the Applicants assert that the claim 4 satisfies all of the requirements of 35 U.S.C. 100 et seq., especially § 112, first and second paragraph. As such, the Applicants believe that the claim is allowable. Moreover, it is respectfully submitted that the subject application is in condition for allowance. Early and favorable action is requested.

The Applicants respectfully assert that, the amendments made to claims 8 and 9 are not claim narrowing as that term is understood under *Festo* and that, the Applicants make such amendments without intent to surrender any of the equivalents thereto and the amendment to claim 1 is made without the intent to surrender any of the equivalents to the subject matter that would have been afforded

to claim 2.

35 U.S.C. § 103(a) REJECTION

The Examiner has rejected claims 1, 2, 4-6, 8, and 9 under 35 USC 103(a) as unpatentable over U.S. Patent Number 6,377,321 to Khan, et al. ("Khan" or the "Khan Reference") in view of Japanese Published Laid-Open Patent Application JP 06-102485A ("Okada" or the "Okada Reference"); claim 3 under 35 USC 103(a) as unpatentable over Khan in view of Okada further in view of U.S. Patent Number 6,414,669 to Masazumi ("Masazumi" or the "Masazumi Reference"); and claim 7 under 35 USC 103(a) as unpatentable over Khan in view of Okada further in view of U.S. Patent Number 5,880,801 to Scherer, et al. ("Scherer" or the "Scherer Reference"). The Applicants respectfully traverse these rejections in view of the above amendments and for the reasons provide below as they pertain to claims 1, 4-6, 8, and 9. Claim 2 has been canceled and the grounds for rejection claim are now moot.

Claims 1, 4-6, 8, and 9

The Examiner admits that the Khan reference does not teach varying the thickness of the cell gap in the different regions of a common LC layer, relying on the teachings of Okada to teach varying thickness gradients to achieve different threshold voltages in different regions of the LC layer. Okada, however, does not teach, mention or suggest that the thickness d satisfy the relationship $1 < d/P < 15$. Although the Examiner maintains that the disclosure does not teach why the range claimed is critical to the invention, the Applicants disagree. Beginning at line 3 on page 25 of the specification, the Applicants explain why a $d/P > 15$ is undesirable. Specifically, to maintain the second threshold voltage V_{thH} below 40 V to reduce costs.

With respect to claim 5, the Applicants also disagree that the specification does not disclose the criticality of the factor 0.5. At line 22 on page 29 et seq., when the condition is not satisfied, two regions of the LC layer having different thicknesses

may have the same number of helical turns, and thus the same value of the first threshold voltage. Thus, it may be possible that the liquid crystal layer included in one of the two regions cannot be transitioned to the focal conic state while maintaining the liquid crystal layer included in the other region in the planar state.

Specification, page 30, lines 1-5. Further, displays with desired number of gray levels can be realized. See, e.g., Id., page 30, lines 13-14.

Accordingly, the Applicants assert that the claims 1, 4-6, 8, and 9 are not made obvious by the cited references and, further, satisfy the requirements of 35 U.S.C. 100 et seq., especially § 103(a). As such, the Applicants believe that the claims are allowable. Moreover, it is respectfully submitted that the subject application is in condition for allowance. Early and favorable action is requested.

Claim 3

Nor can the Masazumi reference make up for the deficiencies of the Khan and Okada references. Masazumi discloses applying a voltage V_{th1} for a short period of time to reset the LC in a homeotropic state. Masazumi, however, does not teach, mention or suggest defining the thickness d of the liquid crystal layer so that V_{thFmax} , which denotes the first threshold voltage for transitioning the liquid crystal layer included in a region with a largest thickness d of the liquid crystal layer from the planar state to the focal conic state, is less than V_{thHmin} , which denotes a second threshold voltage for transitioning the liquid crystal layer included in a region with a smallest thickness d of the liquid crystal layer from the focal conic state to a homeotropic state. The homeotropic state is important to Masazumi only in so far as a vehicle to reset the LC layer. Masazumi is silent about cell gaps of varying thicknesses and about holding the voltage so that that V_{thFmax} is less than V_{thHmin} .

Accordingly, the Applicants assert that the claim 3 is not made obvious by the cited references and, further, satisfies the requirements of 35 U.S.C. 100 et seq., especially § 103(a). As such, the Applicants believe that the claim is allowable.

Moreover, it is respectfully submitted that the subject application is in condition for allowance. Early and favorable action is requested.

Claim 7

Nor can the Scherer reference make up for the deficiencies of the Khan and Okada references. Indeed, Scherer does not teach, mention or suggest a plurality of pixels with a LC layer having at least two different thickness values and including at least two different regions having different threshold voltage values for transitioning from a planar to a focal conic state.

Accordingly, the Applicants assert that the claim 7 is not made obvious by the cited references and, further, satisfies the requirements of 35 U.S.C. 100 et seq., especially § 103(a). As such, the Applicants believe that the claim is allowable. Moreover, it is respectfully submitted that the subject application is in condition for allowance. Early and favorable action is requested.

The Applicants believe that no additional fee is required for consideration of the within Response. However, if for any reason the fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,

Date: April 8, 2004

By: 

George W. Hartnell, III
Reg. No. 42,639
Attorney for Applicant(s)

EDWARDS & ANGELL, LLP
P.O. Box 55874
Boston, MA 02205
(617) 517-5523
Customer No. 21874
434391